

Notice of Allowability

Application No.

10/511,196

Examiner

Dirk Wright

Applicant(s)

YOSHIYAMA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>01182005</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

Claims Allowed

Claims 1-10 are allowable over the prior art of record. The claims are allowable because the prior art does not anticipate nor render obvious the claimed invention of:

a differential gear apparatus for vehicles comprising an internal gear, a sun gear disposed at the inner side of said internal gear with an axis thereof aligned with that of said internal gear, a carrier including a circular cylindrical supporting part inserted between said internal gear and said sun gear with an axis thereof aligned with the axes of said internal gear and said sun gear, said supporting part being formed with a receiving hole whose axially outer and inner sides are open, and a planetary gear rotatably received in said receiving hole of said carrier and meshed with said internal gear at said open part on the outer side of said receiving hole and meshed with said sun gear at the open part on the inner side of said receiving hole, and:

wherein one side part of an inner peripheral surface of said receiving hole in a peripheral direction of said supporting part is constituted of an arcuate face having a same radius of curvature as the radius of said planetary gear, the other side part is constituted of an arcuate face having a radius of curvature equal to or larger than the radius of said planetary gear, and when said planetary gear is contacted with said one side part or said other side part of the inner peripheral surface of said receiving hole, a gap is formed between said other side part of the inner peripheral surface of said receiving hole and the outer peripheral surface of said planetary gear, or:

wherein a part of said planetary gear meshed with said internal gear and said sun gear is formed in a complete gear tooth part and an end part of said planetary gear axially projecting from said internal gear and said sun gear is formed in an incomplete gear tooth part, and the

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width of a tooth crest of said incomplete gear tooth part in the peripheral direction of said planetary gear is set larger than the Width of a tooth crest of said complete gear tooth part, or:

wherein said internal gear is provided at an inner peripheral surface thereof with a first guide part annularly extending about the axis of said internal gear and capable of abutting with an outer peripheral surface of said planetary gear, and said sun gear is provided at an outer peripheral surface thereof opposing said first guide part with a second guide part annularly extending about the axis of said sun gear and capable of abutting with an outer peripheral surface of said planetary gear, or:

wherein said internal gear is provided at an inner peripheral surface thereof with a first guide part annularly extending about the axis of said internal gear and capable of abutting with an outer peripheral surface of said planetary gear, a guide member is disposed at an inner side of said internal gear, said guide member is provided at an outer peripheral surface thereof opposing said first guide part with a third guide part annularly extending about the axis of said internal gear and capable of abutting with an outer peripheral surface of said planetary gear, or:

wherein said planetary gear is provided at an outer peripheral surface thereof with a guide shaft part capable of turnably abutting with an inner peripheral surface of said internal gear and an outer peripheral surface of said sun gear, or:

wherein said internal gear is provided at an inner side thereof with a guide member having a circular guide part in section with an axis thereof aligned with the axis of said internal gear, and said planetary gear is provided at an outer peripheral surface thereof with an annular guide part capable of turnably abutting with an inner peripheral surface of said internal gear and an outer peripheral surface of said guide part, or the invention of:

a differential gear apparatus for vehicles comprising a housing, a sun gear rotatably disposed in said housing and having a helical tooth, and a planetary gear disposed in said housing in such a manner as to be able to rotate about its own axis and meshed with said sun gear, said housing being provided with an abutment surface which is formed on an inner surface thereof and which is adapted to allow an end face of said planetary gear to abut therewith, said planetary gear being provided with a tapered face-like chamfering which is formed on the outer periphery side of an end face of said planetary gear and whose width in the radial direction of said planetary gear is equal to or more than the height of tooth of said planetary gear,

wherein an intersection part between an end face of said planetary gear and said chamfering is formed with a convexly curved surface part capable of smoothly contacting said end face of said planetary gear and said chamfering.

No particular single feature of the claim renders the claim as a whole patentable. Only the claim taken as a whole combination is deemed new and unobvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art Discussed

The examiner has considered the references cited by applicant in his Information Disclosure Statement filed January 18, 2005. None of the references show all of the features of the claimed invention, nor do they show that it would have been obvious to one of ordinary

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skill in this art at the time the invention was made to combine features therefrom to create the claimed invention.

The references cited by the examiner are deemed pertinent to applicant's disclosure. None of the references show all of the features of the claimed invention, nor do they show that it would have been obvious to one of ordinary skill in this art at the time the invention was made to combine features therefrom to create the claimed invention.

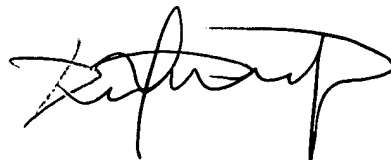
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dirk Wright whose telephone number is 571-272-7098. The examiner can normally be reached on Monday through Friday, 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dirk Wright
Primary Examiner
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DW
Saturday, May 20, 2006